

REMARKS/ARGUMENTS

Claims 1-21 stand rejected in the outstanding Official Action. Claims 1 and 4-21 have been amended and newly written claims 22-24 offered for consideration. Therefore, claims 1-24 are the only claims remaining in the application.

The Examiner's indication of PTO acceptance of Applicants' previously filed formal drawings is very much appreciated. Likewise, the Examiner's acknowledgment of Applicants' claim for foreign priority and receipt of the certified copies of the priority documents is very much appreciated.

Claims 10-21 stand objected to under 37 CFR 1.75(c) as allegedly being of improper dependent form. Applicants have amended claim 10 to positively recite a deformable mirror holder for a deformable mirror according to claim 1. Should the Examiner continue to believe this to be improper claim language, the Examiner's attention is directed to the Board of Patent Appeals and Interferences decision in *Ex parte Porter*, 25 USPQ2d 1144, 1147 in which the Board specifically held that it is completely appropriate to draft claims "in a short-hand format to avoid rewriting the particulars of" a structure recited in a previous claim. It is noted that the Examiner is free to treat claim 10 as an independent claim if he so wishes, but the Examiner is bound by the Board's decision in *Ex parte Porter* which mandates that Claim 10 is a proper claim and any further objection thereto is respectfully traversed.

It is noted that in the *Ex parte Porter* decision, the Board obviously construed Rule 75(c) to mean that a dependent claim which sets forth "all of the subject matter of another claim" meets the requirements of the claim drafting statutes and the U.S. PTO rules implementing those statutes. Specifically, the Examiner's attention is directed to MPEP Section 608.01(n), last

paragraph under the heading “Infringement Test” which, as noted by the Board, specifically sets forth that claims of the nature of Applicants’ claim 10 may be proper dependent claims. There is no requirement in any statute that a dependent claim may not include additional limitations, i.e., claim 10’s limitation of a “deformable mirror holder” for holding the deformable mirror according to claim 1.

Accordingly, the Examiner’s objection to claim 10 is respectfully traversed.

Claims 1-9 and 20 stand rejected under 35 USC §102 as unpatentable over Shen (U.S. Patent 6,236,490). The Court of Appeals for the Federal Circuit has noted in the case of *Lindemann Maschinenfabrik GMBH v. American Hoist & Derrick*, 221 USPQ 481, 485 (Fed. Cir. 1984) that “[a]nticipation requires the presence in a single prior art reference disclosure of each and every element of the claimed invention, arranged as in the claim.”

Applicants’ independent claim 1 specifies a deformable mirror comprising a first layer of actively deformable material “for deforming the mirror as a result of transverse expansion or contraction of the deformable material under the influence of a field applied across said thickness.” The Shen reference does not specify any such deformable material.

In fact, as discussed in Shen, actuators 20 and actuators 16 all deform the mirror due to movement of the actuator along the longitudinal axis of each of the actuators. Thus, they do not deform the mirror as a result of “transverse expansion or contraction of deformable material.” {

Moreover, Shen fails to teach use of a combination of the deformable material and a linear actuator coupled to either the passive substrate layer or the first layer of actively deformable material for further deforming the mirror. Because Shen lacks this positively recited

actively deformable material layer, Shen cannot anticipate or render obvious Applicants' claimed subject matter.

In response to the Examiner's possible contention that Shen's actuators 20 comprise a first layer of actively deformable mirror, it is noted that those actuators 20 depend upon linear movement along the length of the actuator in order to deform the mirror. This is the direct opposite of Applicants' claimed deformable material in which transverse expansion or contraction of the material under the influence of a field serves to deform the mirror and particularly as shown in Figures 9 and 10 of Applicants' specification. Accordingly, any further rejection of claims 1-9 and 20 under 35 USC §102 or §103 over the Shen reference is respectfully traversed.

Claims 10-19 stand rejected under 35 USC §103 as unpatentable over Shen in view of Bacich (U.S. Patent 4,733,945). Inasmuch as claims 10-19 depend from and incorporate the limitations of claim 1, the above comments with respect to the Shen reference are herein incorporated by reference.

There is believed to be no disclosure in Bacich of a deformable mirror comprised of a passive substrate layer, a first layer of actively deformable material and a linear actuator, let alone the additional details of the mirror holder having a plurality of flexible beams as set out in claim 10. Should the Examiner believe otherwise, he is respectfully requested to specifically identify where each of the claimed structures in claim 10 is disclosed in the cited prior art references.

Claims 16 and 17 stand rejected under 35 USC §103 as unpatentable over Shen in view of Bacich, further in view of Lafiandra (U.S. Patent 6,848,070). Inasmuch as claims 16 and 17

ultimately depend from claim 10, the above comments distinguishing the Shen reference by itself and the Shen/Bacich combination are herein incorporated by reference.

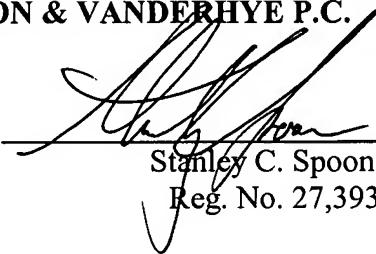
As a result of the above, the Examiner has not indicated how Lafiandra teaches the structures noted to be missing from the Shen/Bacich combination and therefore any further rejection of claims 16 and 17 under 35 USC §103 is respectfully traversed.

Applicant offers newly written dependent claims 22-24. In as much as these depend from claims which are believed to be allowable for the reasons noted above, entry and allowance of these claims is requested.

Having responded to all objections and rejections set forth in the outstanding Official Action, it is submitted that claims 1-24 are in condition for allowance and notice to that effect is respectfully solicited. In the event the Examiner is of the opinion that a brief telephone or personal interview will facilitate allowance of one or more of the above claims, he is respectfully requested to contact Applicants' undersigned representative.

Respectfully submitted,

NIXON & VANDERHYE P.C.

By: 

Stanley C. Spooner
Reg. No. 27,393

SCS:kmm
901 North Glebe Road, 11th Floor
Arlington, VA 22203-1808
Telephone: (703) 816-4000
Facsimile: (703) 816-4100